



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,686	07/28/2004	Phillip W. Barak	054030-0062	4313

31096 7590 09/08/2005

GODFREY & KAHN, S.C.
780 N. WATER STREET
MILWAUKEE, WI 53202

EXAMINER

FORTUNA, ANA M

ART UNIT	PAPER NUMBER
----------	--------------

1723

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/710,686

Applicant(s)

BARAK ET AL

Examiner

Ana M. Fortuna

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 1-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "non-cellular membrane" is unclear as to what is intended, since the term refers to polymeric and liquid membranes. The claims are also unclear as to whether the SAM layer is provided on the polymeric membrane (or electrode). Claim 21-23 do not provide additional structure to the apparatus of claim 19,, note that this limitations are not positively claimed in claim 19.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 19 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto (US Patent 5,928,853). Yamamoto discloses the apparatus as claimed in claims 19 and 24, see Fig. 2, element K, column 16, and last paragraph.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1723

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US Patent 5,928,853) as applied to claim 19 above and further in view of Yamamoto in view of Hogdon (US Patent 5,510,394)(Hereinafter '394). Yamamoto fails to disclose membrane made from acrylic polymer with sulfonic acid, as claimed in one of the embodiments of claim 20. Patent '394 discloses the membrane with claimed properties (abstract, and column 14, claim 2). Placing the membrane in a container or chamber e.g. for use in electrodialysis, e.g. for water treatment, it would have been obvious to one skilled in the art at the time the invention was made, selecting conventional chamber as shown in Yamamoto, it would have been also obvious to one skilled in the art at the time the invention was made, e.g. for contacting a feed stream with each side of the membrane, or contacting one side of the membrane with the solution or water to be treated, and generating a product stream at the opposite side.

6. Claims 1, 13, 15, 16, 18, 25, 28, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirth et al (US Patent 6,387,272)(hereinafter Hirth). Hirth discloses removal of precipitate struvite(magnesium ammonium phosphate) by membrane filtration with a reverse osmosis membrane, the membrane is polymeric, e.g. polyamide, as claimed in claim 13 (abstract, column 3, lines 22-68, and column 4, lines 1-54). As to claim 18, the phosphorous containing waste is a solution or bioliquid, e.g. manure (column 1, lines 5-9). Regarding claims 15-16, 28 the pH conditions are disclosed by Hirth (column 4, lines 55-58). Regarding claim 30, pre-treating with

Art Unit: 1723

conventional filters is disclosed in Hirth (column 3, lines 40-58). Hirth fails to disclose the membrane as "non-cellular", however, discloses polymeric membrane, which seems to fit the definition claimed in claim 13.

Regarding claim 25, precipitation of the magnesium containing phosphates by addition of magnesium salt or hydroxide is disclosed in Hirth (column 4, second paragraph) separation of the precipitate by conventional methods is disclosed in the discussed prior section of the patent, further filtration with the polymeric membrane is not disclosed. It would have been obvious to one skilled in the art at the time the invention was made to further apply membrane filtration to remove remaining liquid from remaining precipitates.

7. Claims 17 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirth et al (US Patent 6,387,272)(hereinafter Hirth) as applied to claims 1 and 25 above, and further in view of Josse et al (US Patent 6,692,642)(hereinafter Josse). Hirth fails to disclose adding ferric chloride to the phosphate containing waste. Josse teaches treatment of manure with ferric chloride to remove a portion of biological phosphorous from the treated manure generating flocks that are separated by microfiltration. It would have been obvious to one skilled in this art at the time the invention was made to add ferric chloride as pretreatment before the struvite formation and separation and/or reverse osmosis (polymeric membrane) treatment disclosed in 'Hirth., based on Hirth's suggestion of membrane pretreatment with membranes with large pore size as pretreatment to remove large particles (column 3, lines 40-58).

Allowable Subject Matter

8. Claims 2-12, 14, 20, 26, 27, 32-36 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: struvite separation with membranes including the claimed composition is not disclosed or suggested in the prior art of record.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additionally cited prior art, in particular 6,406,629, 6,485,645 disclose removal of struvite from a treated permeate containing phosphorous.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1723

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ana M Fortuna
Primary Examiner
Art Unit 1723

AF
September 03, 2005